DOCUMENT RESUME

ED 326 664 CE 056 424

AUTHOR Friis, Henning; Sheppard, Harold L., Ed.
TITLE Studies of the Future Aged. An International Symposium.
INSTITUTION International Exchange Center on Gerontology, Tampa, FL.
PUB DATE 90
NOTE 77p.; Based on papers presented at the International Congress of Gerontology (14th, Acapulco, Mexico, June 1989).
AVAILABLE FROM International Exchange Center on Gerontology, University of South Florida, Box 3208, Tampa, FL 33620 ($7.95).
PUB TYPE Collected Works - Conference Proceedings (021) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS Adult Day Care; Adult Education; Age Discrimination; *Aging (Individuals); Foreign Countries; Frail Elderly; *Futures (of Society); *Geriatrics; *Gerontology; Health Facilities; Health Promotion; Long Range Planning; Older Adults; Retirement
IDENTIFIERS *Denmark; *New Zealand

ABSTRACT

These six papers report on future-oriented studies of the situation of the elderly. "Changing Elderly in a Changing Society: Danish Elderly in the Next Century" (Henning Friis) reports on research dealing with preferences of the future elderly for their life when they grow older. "Aging Effectively: Meeting the Challenge of an Aging World" (J. David Curb, Andrea La Croix, and Jack Guralnik) discusses special factors that promote "success" in aging. "'Future' Studies in Gerontology: The Case of Work and Retirement" (Harold L. Sheppard) addresses socioeconomic implications of multiple generations in the 65-plus population, domination of intergenerational conflict or "equity" or "equality" issues in the changing world, and external factors and trends that bear on these two issues. "Income Security for the Future Elderly: Can We Avert the Crisis by Raising the Age of Retirement?" (Ruth Bonita) presents some issues being addressed in New Zealand with regard to the provision of care for the future elderly population. "Changing Elderly in a Changing Society: Health" (Mariaane Schroll) considers: (1) whether a society of disabled people is being developed, as old people are not allowed to die; and (2) the prevention of chronic diseases by developing good health practices in early adulthood. "Use of Health Care and Social Services by the Elderly: Determinants of Present Use and Future Developments" (Anneke Klaassen-van den Berg Jeths) reports on a study that sought an explanation for the variations in use of service facilities. Each paper concludes with a list of references. (YLB)

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STUDIES OF THE FUTURE AGED

AN INTERNATIONAL SYMPOSIUM

Henning Friis, Symposium Organizer
Harold L. Sheppard, Editor

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Based on Papers Presented for
Symposium at the 14th
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Acapulco, Mexico, June 1989

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Published by
International Exchange Center on Gerontology
University of South Florida
Tampa, Florida
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Published by
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Box 3208
Tampa, Florida 33620
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PREFACE

CHANGING ELDERLY IN A CHANGING SOCIETY: DANISH ELDERLY IN THE NEXT CENTURY

Henning Friis*

Introduction

The chapters in this volume are primarily based on the presentations at the Symposium on Studies of the Future Aged which I organized for the XIV International Congress of Gerontology, in Acapulco, Mexico, June, 1989. I hope the contributions will stimulate further thinking, research and planning on this vital topic of our "future selves."

A recent future-oriented-study on the situation of the elderly in Denmark around 2000-2010 has included developments in population and family, health, housing, work and retirement, financial situation, shopping and informatics, political participation, and leisure activities. The study was initiated and financed by the EGV-Foundation (Dane-Age). Ten reports have been published in 1988-1990 under the common title: New Times--New Elderly (Nye tider--Nye aeldre).

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*Former Director, The Danish National Institute of Social Research and Chairman, Danish Future Study on the Elderly. This preface is adapted from the writer's contribution to the "festschrit" in honor of Professor Ursula Lehr, in R. Schmitz-Scherzer, A. Druse, and E. Olbrich (editors), Altern-Ein lebenslanger Prozess der sozialen Interacktion. Steinkopff Verlag Darmstadt, 1990

CHANGING ELDERLY IN A CHANGING SOCIETY: DANISH ELDERLY IN THE NEXT CENTURY

The future elderly are defined as those over 60 years at the beginning of the 21st century. Special emphasis is placed on those who will join the ranks of the elderly before 2010. The hypothesis has been that their background and attitudes are likely to differ in many respects from those of the present cohorts of elderly, particularly those now over 70 years of age.

The majority of the *present* elderly have lived the larger part of their lives under conditions which have been different from what has been the experience of the coming cohorts of elderly. The new cohorts have for most of their lives been used to a higher standard of living, better housing and other consumer habits. The *future* elderly have experienced more frequent changes in their family life, and they have fewer children. They have attended school for more years and more often had vocational and higher education. Most of the women have joined the labor market, and a majority of them have been in the public and private service sectors. Those who are now in the age group 60-70 years old have retired earlier than their predecessors.

A Cohort Survey

In order to test hypotheses about the future elderly and their preferences for their life when they grow older, an interview survey was carried out in 1987. The survey is based on a representative sample of 1,200 persons in the age cohorts 40-44, 50-54, and 60-64 years. The interview questionnaire included questions indicating the strength of, and the confidence in, the support of the social network, the health status and future demands on the health services, preferences regarding housing, attitudes towards work and retirement, their future financial situation, desires regarding leisure activities and involvement in community activities and political participation. The results of the survey have been presented in a separate volume on attitudes and expectations.

The differences between the three cohorts turned out to be smaller than we expected. It seems that both age-effects and cohort-effects

have had less influence than the so-called period effect, i.e., the effect of recent historical events on all cohorts. This means that on several topics we are able to look upon the future elderly as one group with a consistent pattern of attitudes. For instance, the future elderly agree upon putting high value on good housing and they are prepared to pay relatively high rents for good accommodation; the majority want to stay in their own homes as long as possible. They also agree upon feeling confident in the support of their (well-functioning) social network.

In other matters, there are differences between the cohorts, for instance, regarding health. The results showed differences between the cohorts as to tolerance with ailments and pain, the younger cohorts showing a lower threshold than the oldest. The implication of this might be that they may make heavier demands on the health services.

Besides the findings of the three-cohort-study, a great number of available data sources have been used, and other statistical studies have been commissioned.*

I shall briefly indicate some of the conclusions in nine main areas:

1. Demography and family.
2. Health.
3. Housing.
4. Work and retirement.
5. Financial aspects.
6. Shopping and informatics.
7. Political participation.
8. Leisure activities.
9. Intergeneration relations.

1. *Demography and family relations*

Alternative population projections have been used, all indicating that the population over 60 years of age will grow rapidly, particularly after 2010. Those over 80 years of age show the greatest rate of

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*The planning and direction of the future study has been the responsibility of a small interdisciplinary steering group. Work in the special areas covered by the future study has been assigned to a number of researchers, who have worked closely with the steering group. The steering group has, on the basis of the ensuing reports, prepared a cross-sectional report addressed to the general public.

increase. Special projections of the distribution of the elderly population according to civil or marital status have been undertaken, showing that the share of single persons will increase. Our survey also suggests that those over 70 years of age increasingly will be a link in a four-generation family, but they will continue living separately. Contacts between generations are still frequent, and there is no indication that the family will be less prone to assist old family members in the future.

2. *Health*

Our study of the health situation of the future elderly has as its point of departure the Glostrup Longitudinal Population Survey. Here data are available to determine health changes and environmental and life style factors influencing disabilities in a Danish population during the period 1964-1984. The following assertions can be made with a reasonable degree of confidence:

- Old Danes will be even older.
- Increases in life expectancy will probably be a consequence of improvements in active life expectancy.
- Younger elderly will be functioning better than today's young elderly, while the total number of very old and disabled will increase.
- We expect more very old, single, demented, incontinent, insecure people in need of protection and care.

Our three-cohort survey shows that the younger among the future elderly are more health-conscious than the older, and they are, as mentioned, less tolerant toward illness and pain.

3. *Housing*

For this study, a statistical analysis has been carried out on the housing situation and the behavior in the housing market of the present and future cohorts of elderly.

Single-family housing will be more usual among the future elderly than among the present. More than two-thirds of the coming elderly will live in a house or an apartment which they own. Most

future elderly are inclined to keep their present home, one of the reasons being that attractive alternatives will hardly be available. A minority indicate, however, that they consider moving to a smaller or better-situated dwelling, and some say that at a later stage they might want to live in shared housing with other retired persons.

If the future generations of elderly are as immobile as the present ones, younger families will encounter difficulties in obtaining the same level of housing as their parent generation.

4. *Work and retirement*

Since the 1960's, the labor force participation rate for men has decreased, particularly after the introduction of the Early Retirement Benefit Act in 1979. The reasons for the reduction of the retirement age have been the negative attitude of private and public enterprises towards elderly workers; high unemployment and ensuing pressure from younger employees to squeeze elderly colleagues out; and increasing willingness among employees to retire early.

The conclusions regarding the future can be summarized as follows: Future demand for employees over 55 years of age will increase only if the level of employment increases. But, even then, their employment situation will still be difficult, because of the rapid changes in the labor market. This necessitates a forceful program of training and retraining for employees in their 50's. The survey indicates that the interest in vocational training among the two younger cohorts is considerable.

The positive attitude of the majority of employees towards early retirement will probably not change. The younger cohort in our survey showed less interest in work per se than the older. There will, however, still be a considerable number who prefer to work longer, particularly if part-time work is available. Further, there will in the future be more employees with a higher educational level than at the present time. These groups tend to retire later than the less-educated, and there may, therefore, be a trend in the direction of later retirement.

5. *Financial aspects*

The Danish public old-age pension system is different from that of most other countries, as it consists of a flat-rate amount to all pensioners and a pension supplement, which is income-tested. It is financed from general taxation. There is no obligatory system of supplementary pensions, related to former earnings. Only about 40 percent of the wage earners are covered by agreements on occupational pensions (i.e., employer-based). Although the majority of Danish wage-earners in the 1990's probably will be covered by occupational pension schemes, the payments therefrom will only be significant for those who will reach 67 years of age 20-30 years later.

In the first decades of the next century there will, therefore, be two distinct classes of pensioners: The largest group will only have the general public old-age pensions, while the other group in addition will have quite substantial occupational pensions.

6. *Shopping and informatics*

Many retail shops will be closed in the next decades, and in some areas there will be a significant distance from the elderly's home to the nearest shopping area. The future elderly will, however, to a higher degree than the present, own cars. But those who have no car and live in individual housing areas or in the countryside will be seriously affected, particularly those who have walking difficulties. Increasingly, it will be necessary to assist them with shopping.

Most of those who now are over 50 years of age are not familiar with modern information technology. The younger among the future elderly will be more accustomed to the use of computers for information and practical purposes, including shopping and money transfers. From the turn of the century, this technology will be in common use. It will, therefore, be necessary to introduce older persons to the use of the new information systems, and to decide upon a special rate policy for those who are unable to pay the charges.

7. *Political participation*

The future elderly will, as mentioned, on average be more educated and better off than the present elderly. They have also had a greater variation and freedom in their lifestyle and attitudes. This goes particularly for the youngest cohort of women. Based on our own survey and data from Danish voter surveys since 1971, a study has been made regarding the political opinions and political participation of the future elderly. The conclusion is that they generally will have less authoritarian attitudes than their predecessors; they will be less politically alienated; and they feel more responsible toward public matters.

8. *Leisure activities*

Most of the future elderly will be more active in their life of leisure, which begins earlier and ends later, than was the case for the elderly a few decades ago. They indicate that they have a wide range of interests. Among leisure activities, to which they will give high priority upon retirement, are further education, community work and other activities with contacts to other people. They indicate that they preferably will use the cultural services that are open to all age groups and they are less interested in exclusive arrangements for the old.

However, there will still be a group of elderly who are in a weak position. They have never had cultural interests, they have few outside contacts and they remain lonely and inactive; for them, special initiatives are needed.

9. *Future relations between generations*

Our survey and other data have indicated that the relations between younger and older people in Denmark show no manifest conflicts, and are rather harmonious. Traditionally, older people are viewed as a weak group, and old age pensions and services for the old have always been given a high priority in public decisions, though older persons are excluded from direct political and organizational influence. From the age of 70 years or before, they are *de facto* barred from seeking political office.

CHAPTER 1

AGING EFFECTIVELY: MEETING THE CHALLENGE OF AN AGING WORLD

J. David Curb*
Andrea Z. LaCroix*
Jack Guralnik*

In this century in a variety of countries around the world, we have seen the dream of significant increases in life expectancy move closer to reality. However, as human life expectancy increases, it has become evident that remaining healthy, vigorous and free of disability into the last years of life is as important, perhaps even more important, than the absolute number of years achieved.

In the great majority of cases, the challenge of growing older involves more than the avoidance of disease or physiologic change. It frequently requires effectively compensating for physiologic changes and diseases. This is illustrated here, using data from East Boston, one of the National Institute on Aging's Established Populations for Epidemiologic Studies of the Elderly (EPESE). Table 1 gives the proportion of a community-dwelling older population functioning without disability or disease. In the overall population age 65 and older in this study, only 15.3%, and among those 80 and older, only 6.8%, have neither demonstrated/discovered disability nor chronic conditions.

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*National Institute on Aging, Epidemiology, Demography and Biometry Program, Bethesda, Maryland.

Table 1

Prevalence of Individuals Free of Disability and Chronic Conditions in a Cross Sectional Survey

	Percent with no chronic conditions or disability		
Age Group	Total	Men	Women
65-69	19.7	23.7	17.0
70-74	16.9	23.2	12.8
75-79	12.6	21.1	7.6
> 80	6.8	10.9	4.7
Total	15.3	21.1	16.3

The term successful aging, as recently defined by Rowe and Kahn, emphasizes recent findings indicating that there exist "older persons with minimal physiologic loss, or none at all when compared to the average of their younger counterparts."

For the most part, this and other terms utilized to date do not describe the process of adapting to growing older in most societies. The concepts thus are limited in their utility for the facilitation of rational public policy aimed at dealing with the potentially drastic social, economic and medical changes associated with the rapid aging of the populations of many developed and developing countries over the next few decades.

An alternative term for the adaptive process most individuals undergo with advancing age might be "effective aging" which can be applied to all older people. Despite physiologic declines which are most often related to disease, less than ideal levels of risk factors, and clinically diagnosed disease, a great deal of adaptation and rehabilitation can occur, permitting the maintenance of relatively high levels of functioning in a large segment of the older population. This is the

concept fundamental to effective aging. This concept should not be viewed as dichotomizing individuals into effective and ineffective, but rather should be viewed as a dynamic continuum. This leaves open the exciting potential for improvement, almost without regard to the level at which one starts on the continuum.

A host of factors can influence the ability to age effectively and the lifestyle choices which promote that state. Beyond the burden of disease and disability, these factors include economic well-being, social support resources, availability and access to health services, and psychological well-being. Among those who age effectively, declines as minor as loss of high frequency hearing or as major as a heart attack or hip fracture need not translate, as they often do, into permanent disability and loss of quality of life. Indeed, it is often the case that seemingly similar individuals with similar clinical problems experience very different long-term alterations in function and well-being. Understanding the reasons for these different compensations can help us to discover better ways to keep the quality of life high among older people in our society.

In conclusion, it would be a grave mistake for the society or the scientific community to exclusively adopt the "successful aging" approach as a guide to developing future research agendas, or more broadly directing public health policy. Yet it is also critical that we continue to increase our knowledge of those special factors which promote "success." The concept of effective aging proposed here encompasses both successful agers and the vast middle ground of older people for whom maintenance of functional abilities in the face of physiologic losses is a reasonable and practical objective. Among those people who slip below the threshold of effective aging, many could benefit from interventions aimed at restoration to levels of well-being compatible with effective aging. Effective aging provides a unifying concept for the study of prevention, treatment, and rehabilitation with the ultimate goal of developing health care practice and policies which will maximize the quality of life for the largest number of older people.

CHAPTER 2

"FUTURE" STUDIES IN GERONTOLOGY: THE CASE OF WORK AND RETIREMENT

Harold L. Sheppard*

In my original abstract submitted to Henning Friis, I indicated that I would include the following in my symposium presentation:

(1) Socio-economic implications of multi-generations in the 65-plus population and possible scenarios regarding "responsibility" for and by the elderly.

(2) The extent to which intergenerational conflict or "equity" or "equality" issues may come to dominate the changing world.

(3) External factors and trends – including values/ideology, economy, technology, and politics -- that might have a bearing on (1) and (2) above.

Any careful consideration of the "future" must avoid the pretentious practice of predicting what the world of tomorrow will be, as if we were fortune tellers. We will gain more respect if instead, we discuss different scenarios, as I pointed out in a symposium in Stuttgart organized by Ursula Lehr in November, 1988.

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*International Exchange Center on Gerontology University of South Florida, Tampa, Florida

"FUTURE" STUDIES IN GERONTOLOGY: THE CASE OF WORK AND RETIREMENT

As public leaders and intellectuals, and as persons close to the general public, we must ask ourselves, what do we want future society -- ten to twenty years from now -- to be like? And then to consider the means and resources necessary to reach those goals. Do we actually have the resources to make a reality of those goals, to assure the kind of society that we prefer? "Such reasoning is a far cry from that type of 'futurism' or 'futurology' that tells us what the future society will look like; what the worklife of older men and women will be. . . . I find it difficult to accept without question the many official and expert projections of the age-structure for the work forces of the future" (from Stuttgart remarks).

Perhaps the safest form of futurology, however, is to be found among the demographers. But even in their case, most of them have been prone -- until recently -- to make projections on the basis of limited, unimaginative assumptions about factors that influence--for example--morbidity and mortality rates and life expectancy. The best we could expect -- until recently -- was a series of different projections based primarily on different fertility rates.

We now know how wrong that has been in very recent decades when mortality rates of adults and even older adults have improved -- at least in the western world and in other societies such as Japan and Australia. Reductions in deaths due to cardiovascular disease are a good example. Today, there are scientists making new projections that point to even higher numbers of the older population (and its subgroupings) than even the recent projections have called for.

Another important observation: I have seen little, if any, attention paid to the social and economic ramifications, for the turn of the century, of previously unexpected increases also in the case of middle-aged cohorts, say, those 40-59 years old. Previously unexpected increases in the number of that age group ostensibly mean that fewer workers will die before reaching conventionally accepted labor force exit ages, that is, they will occupy the labor forces of our societies in numbers larger than we had thought. What does that mean in terms of:

(1) Labor mobility and educational chances of younger workers?
(2) Making up for some labor force entrant-age shortages that are immediately impending in many societies?
(3) Providing a larger working population "support base" for the much older nonworking population than current discussions about public and private pension (and health-care costs) futures assume?

The issue of the future of *retirement age* at present remains cloudy, despite the sophisticated econometric projections so popular today. We cannot assume that the conditions or assumptions used in most, if not all, such projections will remain the same. I refer not only to the kinds of dynamic demographic processes just mentioned, but also to a variety of potentials such as the following:

1. There are global developments which portend shifts in the relative economic power or wealth of Western European and North American economies which contribute much to the wherewithal to make comfortable levels of retirement living possible. These developments include the "globalization" of huge corporations which will no longer have national identities or loyalties, despite any protectionist tendencies in any given national economy. The Europa/1992 is perhaps only a micro-portent of that so-far unchecked trend.

2. In the United States at least, there appears to be an unexamined assumption that the proportion of workers covered by, and assured of, *private-pension benefits* (and of benefits that are adequate) will continue to rise. There is no guarantee of that at all. But we make many assumptions about the number and quality of the population of retirees in the near future, as far as adequate retirement standards of living are concerned.

3. On the same topic, it may turn out in that near future, and beginning even now, that the role of *public* pensions as incentives to retire at a given age -- which is typically declining -- may also diminish. Perhaps as some form of a response to the belief that too much is already being done for the elderly in America as one example, we are

already beginning to observe the beginnings of a pattern of what one perceptive economist, Sheila Zedlewski of the Urban Institute, calls the "increasing fiscal burden on the elderly." If she is correct, each of separate, seemingly small policy decisions of the past decade could *together* decrease the incentives to exit from the labor force at ages characterizing recent years. These changes in the United States include the following:

1. The delay in paying cost-of-living adjustments in pension benefits.
2. Starting in the year 2000, a gradual increase in the age for full pension benefits, coupled with greater "penalties" for exiting as young as 62.
3. Taxation of one-half of retired worker's public pensions, that began in 1984. Furthermore, the threshold at which such income taxation begins is not adjusted for inflation.

This means that an increasing proportion of America's retirees will be paying taxes on one-half of their social security income. Before such taxation was initiated, the United States, I believe, was one of the few countries, if not the only country, that did not tax the equivalent of social security income, a fact which gets little attention in discussions of cross-national differences regarding intergeneration "inequity".

Other factors that contribute (or that *might* contribute) to the disincentives to retire at ages characterizing recent years include the new surtax on only the elderly themselves to provide for presumably increased health care services, in 1988 legislation, thus replacing the time-honored social insurance principle.* Zedlewski also deals with the general "tax reforms" in earlier years of the 1980's that have the potential of greater retirement disincentives.

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*This legislation was repealed in 1989 -- HLS

4. Other disincentives may derive from demographic dynamics, including the growing prevalence of two or more generations within the 60-plus population. To what extent will workers 55 to 59 years old, for example, be able to retire in their early 60's as they increasingly have older parents and relatives still alive in their late 70's, and in their late 80's or early 90's? If the counter-argument is that increasingly, future cohorts of the "old" will be receiving retirement income, and therefore will be better able to meet the elder-care responsibility, I repeat my earlier remarks about the future of adequate retirement income sources, not to mention the fact that few, if any, private-sector pension systems (at least in the United States) provide for indexation of benefit amounts. "Eldercare" will definitely be an emerging issue for governments, employers, families, and the elderly themselves.

Current discussions of the future of retirement age policy are increasingly focusing on the impending shortage of young labor force entrants. The "mix" of that shortage involves adaptations through greater use of relatively young women; immigrants; and/or older persons. Greater emphasis on the latter will obviously influence retirement age patterns.

5. These comments about the future of retirement age policy are based strictly on demographic and economic considerations. But there is the socio-cultural and social-psychological realm of reality, too. Retirement at a given age, typically before age 65, is the norm today in modern societies. In contradistinction to the tone of what I have said so far, that norm of pre-65 retirement, perhaps pre-60, exit from the labor force, may become a well-entrenched cultural pattern.*

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*The Organization of Economic Cooperation and Development reports labor force participation rates of older workers (55-64; and 65 and over), male and female. Using the male 55-64 category as one indicator or proxy for retirement age policy and practice, the discrepancy between 1985 participation rates and OECD-member countries is wide indeed:

France	50.1
Sweden	76.0
Japan	83.0

Economic, political, and technological adaptations may have to be found in response to that entrenched pattern. More realistically, we may find the early years of the next century a period characterized by a dynamic tension between the conflicting trends of economics, politics, demography, and psycho-social values.

Compromises, in other words, may have to be forged, involving trade-offs between retirement quality of life and early retirement; between the private-public costs of providing financial and social support for family and other caregivers to the frail elderly. If tomorrow's young want to be treated with dignity in their own old age, they may have to exercise greater deferred gratification than the young of today.

The future of the presumed inter-generation conflict -- which varies widely among the countries represented here and in other countries, and which may in part be subject to differing degrees of "crisis" rhetoric -- will depend not only on the so-called objective demographic and economic conditions making such conflict possible but not inevitable. It will also depend on the way powerful media and image-making institutions explain and define the nature and etiology of age differences in socio-economic status and power. To return to the first part of this statement, we as social scientists interested in gerontology also can play a role in the construction of the definitions of economic, and socio-cultural situations. The outcome of that process may determine, in part, the extent to which older men and women will be perceived as the scapegoats for any disadvantaged positions of their younger cohorts.

6. As for *technology*, it is a key component of much of the outcome just cited. We have only begun to take the very first steps to explore the potential benefits of biotechnology and genetic modifications, as far as quality of health and its prolongation are concerned. At another level, industrial technology could continue to raise productivity (not simply production) and thereby reduce per-worker costs of supporting the non-working population, young *and* old.

On perhaps a more mundane level, the currently high costs of medical care for severely chronically ill persons (disproportionately the so-called old-old) stem partly from costly sophisticated medical technologies. The fear-mongering projections of the price of an aging society are heavily based on the extrapolation of current expenses of that technology multiplied by the population explosion of, say, the 85-plus category. Those costs are based on the assumption of no possibilities of *reducing* the costs. Such costs will certainly not undergo much reduction as long as little or no investments are put into research and development by public and private sources designed explicitly to lower the extreme costs of high medical technology.

Once again, my point is that we must ourselves discuss and debate the kind of future we want, and put our resources to work to make that future more probable than current portraits call for. Our responsibility is not to predict tomorrow, but instead to help construct it, or at the very least to paint the types of scenarios if this or that is done or not done.

CHAPTER 3

INCOME SECURITY FOR THE FUTURE ELDERLY: CAN WE AVERT THE CRISIS BY RAISING THE AGE OF RETIREMENT?

Ruth Bonita*

Summary

New Zealand is unique in having a flat rate benefit which is universal and payable to men and women at age 60. Because it is set at a level which is generous by international standards, and accounts for 12% of all government spending, one of the major issues facing the current Labor Government of New Zealand is the sustainability of the cost of the scheme for future cohorts as they enter retirement. The vigorous public debate on this issue reflects, at least in part, the intergenerational conflicts that can only increase as social elements within society focus on the aged as a "burden" in our society. Income support for the elderly population exemplifies the range of complex issues involved in all developed countries as a result of the demographic changes we can expect in the future.

Concern about higher dependency ratios and close scrutiny of how to get the best value for money out of pension schemes is not unique to New Zealand. Even though OECD countries already rely

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more heavily on their citizens to save, virtually every government is addressing the problem of how to use taxpayers' funding of retirement more cost-effectively while ensuring that no one lives in hardship in his or her old age.

Changes to the age of retirement have important implications for the standard of living and health status of the elderly, and the effects of changes need to be closely monitored. Because cohort studies are unable to measure the effect of income on health status, cross-sectional studies on random samples of the population repeated at regular intervals are proposed as the most cost-efficient way of monitoring the health of the elderly.

Introduction

The emergence of the elderly as a substantial subgroup within the population has been described as a crisis, not only for the health care system, but also for the social welfare sector which provides income security for the elderly. All OECD countries, even those with consistent and integrated policies, are facing the problems associated with an aging population--some more than others. Table 1 summarizes the extent of the population differences being tackled by some of the countries represented at the Acapulco Congress.. New Zealand, with the smallest population and lowest percentage of 60s plus, could be seen to be in a favorable position, but in the absence of a significant increase in productivity, the growth of the retired population will intensify the competition for limited resources in New Zealand.

Table 1

Total Population of Mexico and Selected OECD Countries

Country	1985 (millions)	% of Population 60-plus Male	Female
U S A	240.0	18	14
Mexico	80.0	6	5
West Germany	61.0	24	15
Australia	15.7	16	13
Sweden	8.5	25	21
Denmark	5.0	22	18
New Zealand	3.5	15	12

The purpose of this chapter is to present some of the issues currently being addressed in New Zealand with regard to the provision of care for the future elderly population. Five options for the future are outlined.

Profiles of the over-sixties

There are currently about half a million people over 60 years of age in New Zealand (15% of the total population); within this category there is an enormous diversity. While some work, most are retired; some have considerable assets, others have very limited income; some can call upon the support of family and friends, while others live alone. In recent decades there has been a trend to earlier retirement which is explained by changes in expectations (possibly resulting from increased affluence), a deteriorating employment situation, a gradual lowering of the normal age of retirement, and the

availability of redundancy pay as industries make for more "efficient" production. 30% of the population over 60 is in the "youngest" age group (as a proportion of all those over 60), and there is a greater proportion of women than men in all age groups.

Future projections

New Zealand's total population will increase by 15.2% (496,000 people by 2011). The percentage change for different age groups (1986 - 2011) is shown in Figure 1. The greatest growth is in the oldest age groups; this translates to an additional 60,000 people over 60 years of age.

Figure 1

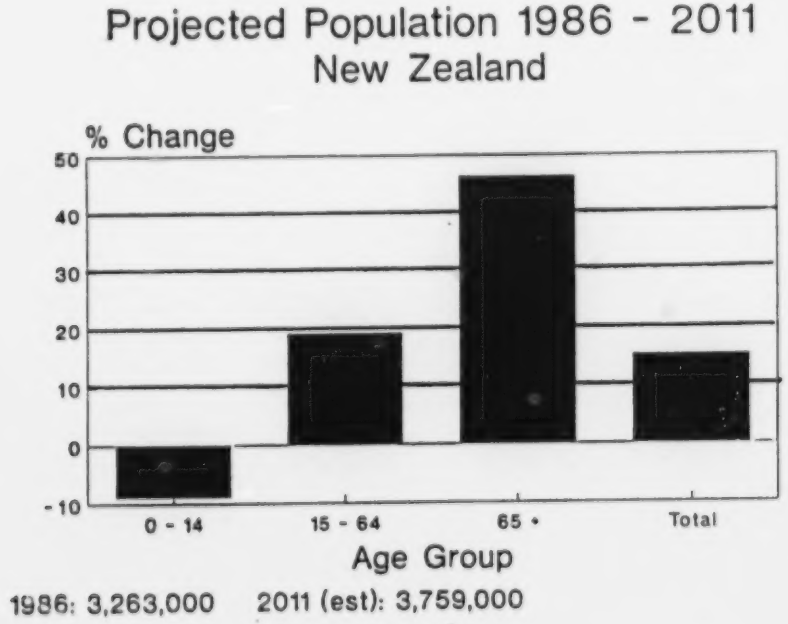


Figure 2 and 3 show the expected change in the dependency ratios in selected OECD countries from 1985-2025. The dependency ratios represent the percent of the population under 15 and 65-plus, each expressed as a percentage of the population 15-64 years. In most countries, the decline in the "young dependency ratio" is concentrated in the years up to 2000-2020, while the rise in the "old dependency ratio" occurs mainly after the year 2000. The OECD predicts that between 2030 and 2050 the proportion of the elderly will reach its maximum almost everywhere and then stabilize at a slightly lower level. On current projections, by the year 2036, there will be fewer than two people of working age in New Zealand for each person aged 60 years, compared with about four at the present time, clearly an untenable situation.

Figure 2

Projected old dependency ratio (65+) to population aged 15 - 64 years

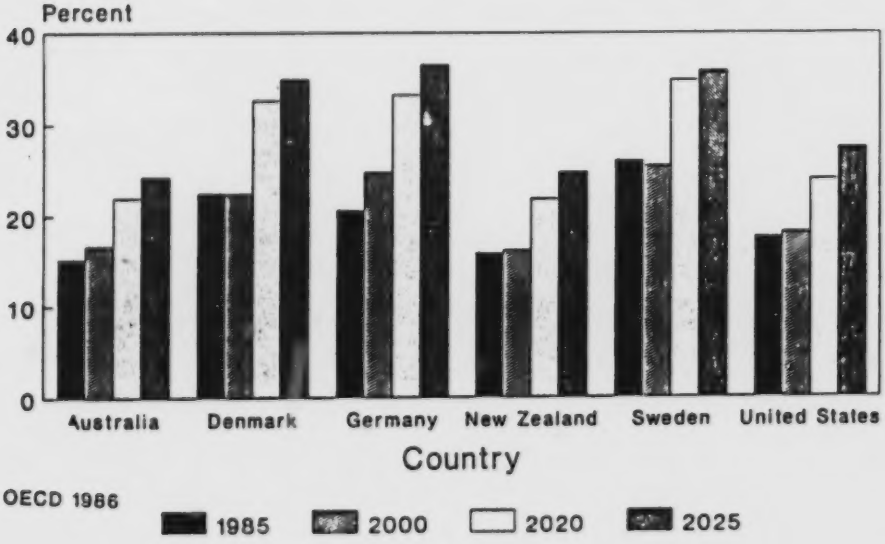
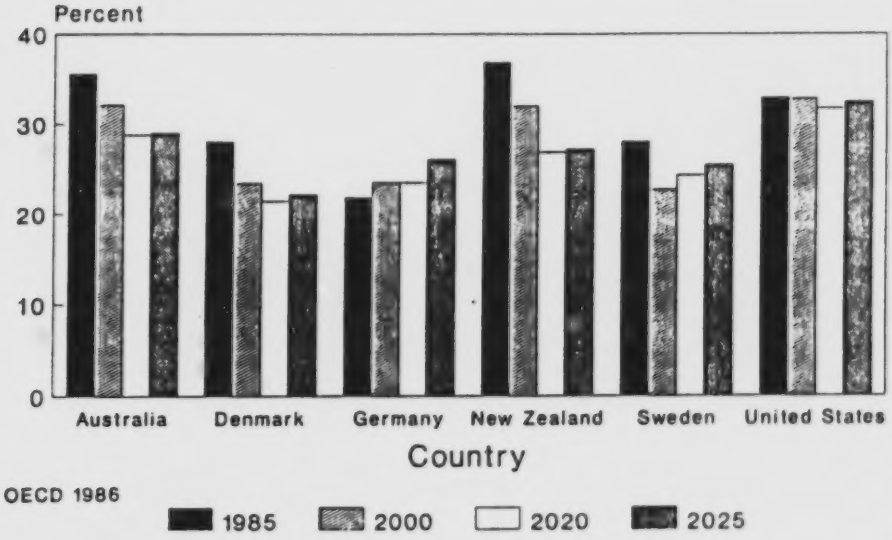


Figure 3

Projected young dependency ratio <15yrs to population aged 15 - 64 years



The Future Elderly

It is difficult to peer into the future and accurately predict outcomes. Growth and output depend on the employment situation, trends in labor force participation rates (especially those for women) and growth and productivity, all of which are impossible to predict. The productivity of the future generation of workers will depend on the education they receive and the investment in new technology. The growing demand for services, especially in the health sector, is likely to more than absorb any of the labor force that can be spared if the means to fund such services can be found.

Nevertheless, the new generations of retirees are those who will have benefitted from the property boom in the 70s and the easy home-owner policies in the postwar period. Currently, 75% own their own

homes and a further 15% have a mortgage; only 10% live in rental accommodation. In their younger days this cohort (including those currently aged 40-plus) generally also experienced full employment and a buoyant welfare state which provided free health care and education. While in general, those who can expect to retire over the next 20 years have been relatively advantaged, amongst this group there are some who have been casualties in the recent economic reforms. Many of those retiring after the turn of the century may again have had less favorable experiences.

Prolonged periods of unemployment in the 1980s mean that many have limited ability to save for their retirement in any form. The cohorts who will enter retirement in the next century will be less likely to have enjoyed continuous full employment, less likely to have been able to provide a debt-free home, may be less likely to have private superannuation advantages, and are probably less likely to be permitted to enjoy the advantages of a generous state pension.

National Superannuation

The Old Age Pension was introduced in New Zealand in 1898 from the age of 65 years. Conditions for eligibility were initially very strict and included income and means tests, 25 years residency in New Zealand and a requirement to be of "good moral character and sober habits". Over time, the pension has gradually increased and the qualifying conditions have relaxed. The major innovation in state superannuation occurred in 1940 when the age of eligibility was reduced to 60 years. The structure of state pensions remained intact for the next 30 years while the levels of benefits gradually increased and the coverage was expanded. In the past two decades, however, State superannuation has gone through a period of rapid change. The current National Superannuation scheme was established in 1977 by the National Government and for half the population aged 60 or more, is the major source of income.

A comparison of the age of eligibility for pensions in New Zealand and other OECD countries is shown in Table 2.

Table 2

Age of Eligibility for Full Basic Pensions in Selected OECD Countries

Country	Eligibility age		Other elgibility conditions
	Men	Women	
Australia	65	60	10 years residence
Belgium	65	60	45 years contributions
Denmark	67	67	40 years residence
Germany	65	65	5 years contributions
Japan	60	55	25 years contributions
Netherlands	65	65	50 years contributions
New Zealand	60	60	10 years residence
Norway	67	67	3 years residence
Sweden	65	65	Required years residence
USA	65	65	Various requirements

New Zealand's National Superannuation has been described by OECD countries as "remarkably simple and generous". The basic design is a universal flat rate benefit (equal to 80% of the average after-tax wage) financed out of general taxation with eligibility determined only by age and residency. In contrast, the main source of retirement income in most other OECD countries is an earnings-related pension based on past contributions with a flat rate welfare payment available for those who have not contributed. National Superannuation in New Zealand, however, provides a flat rate benefit paid out of general revenue. In addition, all superannuitants are entitled to higher subsidies for primary health care, assistance with accommodation costs if necessary, subsidized domiciliary services, and rest home subsidies to cover the difference between income and the costs of residential care, where such care is needed. All public hospital care is free.

National superannuation, as it exists at present, has a number of advantages for women. Above all, it is paid to women in their own right, married or single. For many women, it has been the first independent income they have ever received and is the only acknowledgement of their unwaged contribution to society.

Age of Retirement

While the age of retirement has been falling throughout this century, longevity has been increasing, especially for women. Thus, the period of withdrawal from the paid work force has been extended at both entry and exit. The problems of redistribution associated with an aging population suggest that it may now be time to reverse this trend. The dependency ratio of the potential labor force to the retired population according to differing ages is shown in Table 3.

Table 3

Ratio of the Potential Labor Force, According to Age Criteria

	% of Population	
	60-plus*	65-plus**
1990	24.9	16.0
2000	25.4	16.3
2010	29.7	18.6
2020	37.3	22.9

* % of population 60 and over expressed as a % of the population 15-59.
** % of population 65 and over expressed as a % of the population 15-64.

Clearly, raising the age of eligibility to 65 would dramatically reduce the dependency ratio problem, although it is worth bearing in mind that these dependency ratios assume everyone within the labor force will be in paid employment and be contributing to measured economic growth and tax revenues. The cost to the state of a universal scheme would be somewhat reduced by raising the age of eligibility but would still be large. The net cost according to differing age criteria is shown in Table 4 as a percentage of private market income based on current benefit levels.

Table 4

Increase to Costs of a Universal Scheme as a result of Population Changes and Changes in Age of Eligibility

Year	Eligibility Age 60	Eligibility Age 65
1991	8.7	7.1
2001	9.0	7.3
2011	10.3	8.1
2021	12.6	10.1

This table shows that the real tax level needed to sustain a benefit at a given proportion of average earnings will rise substantially over time and costs could be held by reducing the benefits paid. This would adversely affect those who rely on their pension.

Future Options

Changes to National Superannuation, because of the change in the dependency ratios of the older population to the working age population, is inevitable. A number of options for the future funding

of income security for the elderly have been suggested: (1) taxes could be raised; (2) the age of entitlement could be increased; (3) the level of benefits could be lowered; or (4) the benefits provided could be more tightly targeted. The five options offered by the Minister of Social Welfare for public debate are as follows:

1. Targeted state assistance (means and income tested) providing income only for those who do not have enough money to maintain a reasonable standard of living;

2. A targeted scheme with a universal part-pension to everyone above a certain age;

3. A modification of the present National Superannuation scheme by raising the age of entitlement and increasing the minimum period of residence;

4. "Social insurance" whereby taxpayers would make compulsory contributions with pensions for those who had low contribution records (or who did not make contributions) being topped up by the state;

5. A compulsory funded state scheme with a private contracting-out option whereby a special levy on income would provide a pension based on the amounts actually contributed to the state scheme.

The Government appears to be leaning toward replacing the scheme with some form of contributory system, whereby those receiving incomes contribute to a fund out of which some proportion of their retirement income will be financed.

The Position of Women

A contributory system, commonly used by OECD countries, entails specific problems for women. Women earn much less in the work force than men, despite the passing of equal pay legislation over a decade ago. Women also encounter discrimination which prevents promotion to higher paid jobs. Responsibilities such as child care and looking after elderly relatives often make it more difficult for women to sustain a career and a regular savings plan. Some women do not have a choice about what kind of work they can get, and take on low-paid or part-time work which will fit around their children's needs. More and more, women and members of the paid work force take time out for childbearing and rearing, rather than being unpaid household workers who take paid work from time to time. In 1986 35% of the full-time labor force were women and just over half of all women 15 years and over were in the work force. Despite equal pay legislation 15 years ago, there is still a huge gap of around 25% between average male and female ordinary-time hourly earning.

Because women live longer than men, they would have to pay more to get the same level of pension, or end up receiving a lower level of pension for the same contributions. One solution to this problem would be to ensure compensation for those whose earnings record is interrupted by unemployment, illness, disability, and times spent in unwaged work (whether that be caring for children or elderly and sick relatives), or other unpaid work of social value. Although the government would need to "top" up pensions for people outside the paid workforce, it is unlikely that women would be as equitably catered for as they are now.

Conclusion

National Superannuation has many desirable features, especially for women. It is a very simple and popular system which treats all people as individuals and because it is not linked to past financial

contributions, it has wide coverage and probably ensures that most recipients have an adequate income. There is no stigma attached to receiving it or being totally dependent on it.

It is, however, widely viewed as fiscally unsustainable in the long term. While the focus has been on the high cost of the scheme, the underlying implication is that future taxpayers will be unwilling to pay the high taxes that the scheme will demand. Already the inter-generational conflict is evident by calls from business groups to raise the age of retirement to 70; the aged persons groups argue for maintenance of the existing scheme.

The question of what is an adequate income after retirement has long challenged public policy analysts. The difficulty is that any scheme that seeks to maintain reasonable and adequate living standards for retirees in the future will be expensive--all the more reason to reform the state pension in ways which make it fairer to all and cost-effective. Clearly more information is needed about the nature and extent of the financial problems experienced by older people and about their economic well-being, generally speaking, including their wealth holdings. It may be more cost-effective to provide supplementary assistance for special cases or to subsidize selected goods and services than to increase or even maintain the current basic level of National Superannuation. Clearly the age of retirement should be increased gradually, starting as soon as possible.

The challenge will be to design cost-effective and efficient income policies which achieve fairness, not only for the elderly, but also for the rest of the population. Strategies will need to be devised to augment the available resources to meet the aging problem. This means tackling the awkward and unpopular notion of redistributing resources from the well-off to the poor at the same time as securing an adequate growth of output to improve the base for such redistribution in the context of a growing retired population. Income is one of the most important determinants of health, and the decisions made now for the future elderly will need to be monitored closely. Without a commitment to, and appreciation of, the role of the elderly and women in society, it is unlikely that retirement policies that are fair, sustainable, and which meet wide acceptance will be developed.

Postscript

The New Zealand government announced the following proposed changes to the National Superannuation Scheme in the 1989 Budget, July, 1989:

1. An increase in the age of eligibility to 65 years; to be phased in over a 20-year period starting in the year 2006;
2. Lower payments in real terms to around 65% of the average wage (currently at 76.5%) by the year 2006;
3. A flat rate, irrespective of contributions to the workforce, will be paid;
4. The name of the scheme will be changed from the National Superannuation Scheme to Guaranteed Retirement Income.

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CHAPTER 4

CHANGING ELDERLY IN A CHANGING SOCIETY: HEALTH

Marianne Schroll*

Introduction

In our project on The Future Research Study, sponsored by the EGV Foundation of Denmark, we focused on two critical issues related to health:

1. Are we developing a society of disabled, as a result of not letting old people die? Have we in other words, eradicated "the old men's pneumonia," without avoiding cancer, ischemic heart disease, senile dementia, incontinence, osteoporosis, etc?

2. Or will we be able to prevent such chronic diseases by developing good health practices in early adulthood?

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CHANGING ELDERLY IN A CHANGING SOCIETY: HEALTH

The second issue involves the proposition that if society makes it easier to lead a healthy life, and the individual takes responsibility for her own health, it ought to be possible to avoid cancer and ischemic heart diseases, accidents and suicides, similar to the eradication of infectious diseases in our part of the world. The Danish population has undergone an aging process after World War II, and thus the former population pyramid has changed into a mushroom. Fewer children are born now to carry the older generations, and nowadays the elderly live longer than expected from former mortality projections.

An examination of changes in causes of mortality during the last two decades can be interpreted so that the fall in mortality is not due to any therapeutic breakthrough, but rather increased resistance against diseases that the elderly (now as ever) are prone to. Similar changes in morbidity patterns are known from *The Glostrup Population Studies*, where a representative sample of 17,000 30-85-year old men and women from 11 municipalities around Glostrup Hospital (300,000 inhabitants) have been surveyed from 1964 to 1988. The results are used in the following four sections.

I. *Are the elderly "younger" than elderly were before?* Regarding biological functions, the results are uniform. "New" 70 year-olds, born in 1914, function better than "old" 70 year-olds, born in 1897, examined with standardized methods at The Glostrup Population Studies: They have less hypertension, lower serum-cholesterol, are less obese, have better glucose tolerance and better pulmonary function than the 70 year-olds examined in 1967. The incidence of certain diseases, subjective health, and consumption of drugs, however, disturb that picture. An increase is observed in diseases in women, where tobacco use is a possible cause: bronchitis, intermittent claudication -- and according to similar Swedish cohort studies--osteoporosis (and hip fractures) among women.

The improved biological function in the 70 year old males and females of 1967 vs. those of 1984 has been observed simultaneously with better living standards, education, pensions, and care.

In addition, a more intense therapeutic contribution against high blood pressure, reduced tobacco consumption (males) and increased physical activity, especially among females, should be noted.

II. If "aging" were the only cause of disability among the elderly, future research would be easy. A simple prognostic calculation of the actual health status of the population is all that would be necessary. The disabilities as observed among the elderly at present are, however, not inevitable. *Intrinisic aging* has no special importance for a normal autonomous daily living among young-olds (age 60-80). Only after age 80-85 (but with great individual differences) are so few resources left that activities have to be reduced. Anyway, when we observe more old than young people who are disabled, it is due to *age-related diseases*, diseases with higher incidence with increasing age.

A *therapeutic intervention* can mean a reversal of this process. In the 1914 population in Glostrup, antihypertensive treatment was one among several factors contributing to an average blood pressure reduction between 1964 and 1984. Many old people are, in addition, marked by *wear and tear* from the environment, and "rust" -- i.e., inactivity of body and brain. In the 1914 cohort we found a significant association between smoking habits and pulmonary function between the ages of 50 and 70. When cholesterol values fell in the *same* individuals from their 50th to their 70th year of age, it must be due to changes in life style, diet, and physical activity. If from childhood on, we could reduce strains from the environment and improve our life style, it would be possible to prevent disabilities in old age.

III. People with better scores in tests of activities of daily living live longer without help from others. As more people seem to reach retirement age with well-functioning characteristics, their chances of becoming even older and in good shape will be better than former generations. The tendency towards "rejuvenation" occurring over the last two decades makes it probable that the years they gain will be "active years".

To support this hypothesis, we can use findings from the study of the 70 year-olds surveyed in 1967 and 1984 in Glostrup, together with findings from the study of 75-, 80-, and 85 year-olds in the city of Copenhagen. A greater proportion of people reaching the age of 70 (retirement age) will be healthy and functioning well. With better function at that age, the probability of independence in one's own home will increase, improving active life expectancy. This is an important argument, when the cost-benefit of prevention is discussed. The argument is too often posed, that we postpone disability, but with no savings for society in the long run. The counter-argument is that *prevention* avoids disabling diseases and gains active years.

IV. The older generations have, over the last decades, gone through a rejuvenation. Will the trends continue? Cohorts born between 1920 and 1940 constitute the larger part of the elderly beyond year 2000. The health of those cohorts now can be compared with the health conditions of today's elderly, thereby getting an impression of probabilities of decreasing or increasing disability, when they grow older. The results depend, however, on the measures of health employed.

Mortality from *myocardial infarction* has been reduced in females in Denmark ever since the 1950's; in older males from the early 1970's; and now also in younger males (about 10%). It should be possible to fulfill the goal set by the World Health Organization to reduce mortality from *ischemic heart disease* in the population under 65 years of age by at least 15% before the year 2000. It can be realized with a continued effort to treat it, and that way reduce mortality from myocardial infarctions still occurring, but especially by reducing the risk factors, primarily blood cholesterol and tobacco consumption.

Mortality from *strokes* has been falling in all sex and age groups in Denmark after World War II, partly due to blood pressure control. A further reduction will depend on reduction of atherosclerosis by risk factor reduction.

Cancer has been increasing in the Danish population after World War II, related to increased consumption of tobacco and alcohol. The goal set by the World Health Organization to reduce cancer-mortality by 20% may hardly occur before year 2000. If so, it has to be through a breakthrough in cancer treatment. Lung cancer mortality in women can, for instance, be expected to rise (75%) due to the increased frequency of smokers among them.

The only way to know whether people feel healthy is to ask them. Subjective health has shown good correlations with other -- objective -- measures of health, and it has good predictive value. No great differences are seen between males and females and among the different age groups' proportions of persons finding their health good, average or bad. The answers are influenced by people's own expectations of health at a given age. That is one explanation for the high frequency of subjective good health among the elderly. Some investigations point toward improvement of subjective health in the population over the last decades.

Whether that will continue depends on the awareness of signals from the body or signs of disease. Such awareness is more pronounced in females than in males and more among young than old. That can be of importance for the way each of us will act to improve our health. On the other hand, it can mean that the threshold for asking for help will be lowered. One can foresee increased use of medicine as well as more alternative treatments as new cohorts with more "body awareness" grow older.

Health expenditures in Denmark have been increasing, from 1970-85, but to a lesser degree than Gross National Product (5.5-6%), although there has been an aging of the population. The increase is probably not caused by a worsening of health, but is due rather to covering of previously uncovered needs, an awareness of the importance of staying healthy, and increased demands for service, along with increased possibilities of treatment.

A disability becomes a handicap when activities of daily living are

compromised to a degree that independence is given up. Today, 70% of 75-85 year-olds in Denmark live independent lives; 10% are in a nursing home and 10% are dependent on personal help in their own homes, whereas another 10% only need a helping hand. The disabilities threatening independence among the elderly are the five "big I's:

- *Immobility caused mainly by arthrosis and stroke.* In the future, some of the 60,000 housebound elderly might be helped by more accessible apartments. Arthrosis can be managed to a certain degree by surgery.
- *Instability with risks of fall* can be prevented by physical activity. Especially in case of inactivity due to acute diseases, rehabilitation must take place almost immediately, if ability to walk is to be regained.
- *Intellectual reduction due to senile dementia* makes 4-6% of all retire persons dependent on help. When more people become older, that will increase the number of demented people in the population.
- *Incontinence* can to some degree be prevented, and if manifest remedies can be fitted, the added social problems can be avoided.
- *Iatrogenecity* is the disability and dependency forced upon the elderly as side effects of treatment. It is often necessary to adjust treatment and stop unnecessary medication, and inform about and help the intake of medical treatment that does have to be continued. But side effects are not only associated with pills. Some old people are stricken by a loss of function secondary to diseases and treatment of other organ systems. As the teaching of geriatrics is spread more in the health service system, routines preventing secondary loss of function in elderly patients will be more widely maintained.

V. *We have not obtained equality in health.* To the degree we can predict whether some of the groups now more prone to diseases will diminish or grow, we can predict the health consequences for the elderly of tomorrow, compared to the elderly of today: Male mortality is higher than female mortality, but morbidity measured by use of health services is, however, greater among females. An "equality" regarding ischemic heart disease and cancer can be foreseen after the year 2000.

Geographical differences can be seen even in Denmark with higher mortality in urban than in rural areas. This is due to a selection of people more prone to diseases, in the city. Also, geographical differences are seen in subjective health, the threshold for visiting general practitioners and doctors' choice of treatment (medicine and operations). Access to health services probably will be still more leveled out over the country.

Mortality and morbidity differ according to occupation and industry groups. The work environment has mainly been improved during this century, but it is a question whether that trend will continue. What are the consequences for retirement age of working conditions now endured by 40-60 year-olds? Mortality and morbidity have social-economic correlations, so lower classes have more illnesses; accordingly, risk factor distributions are preponderant among unemployed, divorced/widowed and persons with lower education.

It is foreseen that morbidity among women will approach the male disease pattern, when more females live under male conditions. The Glostrup data show, however, no difference between lifetime housewives and employed women at the age of retirement. More employed women in the future implies more with higher wages and improved health; and also more with low wages and monotonous and paced work, correspondingly with disabilities. We can therefore foresee a polarization in health among female pensioners.

A hypothesis has been discussed in Denmark about the relationship between early retirement and health. On one hand, chronic diseases might be a main cause of early retirement, but one might also

believe that early retirement through an altered social role might make a person ill. It has now been shown that any weaknesses are improved by retirement, and the opposite hypothesis has not been verified.

Through 1950-70, the Danish Welfare State was created. The more class-related differences in health have thereby almost been eradicated. Currently the health differences between the mainstream society and the one-fifth of the population who are unemployed, divorced, and without education, are striking. From that experience one can foresee a reinforcement of "the paradox of the elderly": Most become healthier but a smaller proportion is even more disabled.

Life style has health consequences. Important here is alcohol. Alcohol consumption has tripled over 20 years, increasing the related mortality, morbidity, and disability. Tobacco consumption has changed; fewer men, but more females, are smokers. At present, 45% of both men and women are smokers. They smoke an increasing number of cigarettes per day, so the total tobacco consumption in Denmark is unchanged. As smoking has health consequences, a change in smoking related diseases can be expected among the future elderly: Tobacco-related diseases will occur with similar incidence, but especially in the lower social classes and with less sex differences than today.

A national dietary survey has shown little difference in diet between age, sex and educational groups. All Danes eat too much fat (40%), and too little potatoes and bread. Parliament has approved a Danish nutritional policy aimed at the reduction of the consumption of fat. If that becomes a reality, it can reduce atherosclerosis, obesity and possibly cancer among the future elderly.

In recent years, the elderly have become more aware of the importance of physical activity. Good, regular exercise habits are preventive against heart diseases, osteoporsis and other disabilities in the locomotor system. Exercise assures direct well-being and facilitates activities of daily living. One brisk walk a day is enough.

VI. The individual's attitudes towards his/her own health and self-care is of primary importance for health among the future elderly. Self-care is the concept characterising the task for health practices by people themselves. Self-care is the basic form of prevention, treatment and care. The effort is relatively constant over the life course, changes scarcely with aging, but may be influenced by experience and changing life conditions.

Differences between self-care among the elderly now and in the future can be expected, if there are cohort differences in self-care. It is important that self-care can be improved also among the elderly. It is important to strengthen enthusiasm, the belief that what you can do yourself is also valuable. Concrete information about what you actually can do to stay healthy is also necessary. If a greater proportion of middle-aged people believe in self-care obtain better education on health matters, and are supported by friends and officials to keep it up, that generation will do better, as they grow older.

VII. The influence of health services on health among the elderly in the future can be described according to "the chain of treatment": Healthy-sick-hospitalized-maybe in need of care. 80% of aged pensioners in Denmark are healthy and functioning well in their own dwellings. 40% are reached by municipality services. Among the healthy persons can be selected some with increased risk of decreasing function and dependency ("risk persons" = single, ill, moved to other areas).

Prevention, however, can more effectively be directed against "risk situations" (becoming widowed, hospitalized, change of dwelling, etc.). It might be a common right for elderly Danes to look forward to a visit from a home nurse, similar to the prophylactic visit to all newborns. Through such a visit, the older citizen can get to know the person who might be of help in any risk situation. It is still an issue as to whether *all* elderly ought to be visited, or a concentration only on risk groups is possible. A Danish intervention study (Rdovre project) has shown an effect on mortality and hospitalization from preventive visits (every 3 months) to everybody above the age of 75.

Health screening by general practitioners has been suggested for the elderly. More informal case-finding by the family doctor will probably be far more valuable, giving individual advice as to diagnosis, treatment, function and social background. A serious risk situation is hospitalization. The reasons why hospitalizations and use of bed days are increasing among the elderly can be:

1) The increasing number of elderly.

2) Better access to non-invasive diagnostics and gentle treatment(anesthetic).

3) Ageism.

4) We do not master the risk-situation of discharges, so many elderly patients have to be readmitted (33% in one year).

5) Bed days for different impairments are used in succession instead of the simultaneous treatment of different organic diseases, due to over-specialization.

6) Diagnoses and treatment of one organ lead to side effects or loss of function in other organs.

7) The primary sector is not ready to take over care of the elderly, when hospital treatment is finished.

8) We sustain life by "all means".

9) Disease incidence may be increasing.

These possibilities are discussed further in the Danish Future Study. It appears that if we continue to try to adapt elderly patients to

health system designed for younger patients and their diseases, and at the same time maintain "ageism" in the priority of resources, more elderly will become in need of care, because in case of disease they end up between the different service possibilities. If, however, we follow the intention of better prevention, treatment and care of the elderly, we can--directed by the results of several recent projects -- adjust our health system to different individual needs, and thereby at each stage prevent deterioration. (Primary, secondary and tertiary prevention).

Conclusions:

Old people will be even older.

One condition is that the most common chronic, degenerative diseases (ischemic heart diseases and cancer) can be prevented, so that their incidence is postponed. Another condition is that therapeutic progress diminishes mortality from diseases which are, after all, appearing. The improvements in life conditions and life style, which have made every new cohort of pensioners healthier and well-functioning, might not continue.

If "the mortgage-diseases" shall be postponed, it demands a knowledge about care for one's health during the life course individually, and a very active social engagement, where preservation of health is a priority in all decisions in society. If all cases of ischemic heart disease and cancer could be prevented, the average life span would become close to 85 years. Probably heart diseases will only be reduced by one-third before the year 2020, and the incidence of cancer will increase.

The difference between male and female mortality will be reduced.

Equality in all areas of life will probably lead to equality in work stress and life style, and so will "risk factors" for the most common causes of death. Female mortality from lung cancer and myocardial infarction is supposed to increase, while male mortality is decreasing.

Even a substantial reduction in male mortality from coronary heart disease will, however, not reduce the female advantage before the year 2010. Until then, the gap is conditioned by heart deaths, which already have occurred.

The gained years will be active years.

As chronic diseases will be postponed, a large amount of the young-olds will stay healthy and well-functioning. Their possibilities to maintain physical and mental abilities are thereby improved, so they have better resistance against diseases which might be controlled. A positive process is thus initiated, leading to more independence among 85 year-olds, for instance, and also an increased probability to stay independent in the following years.

The absolute number of old people in need of care will increase, but the mean age of demand for care will be higher, and the total demand will be heavier. We can expect more very old, single, demented, incontinent, anxious people to be cared for. The reason is that we prevent fatal diseases, but the therapeutic possibilities of treating and keeping people with diseases alive is of even greater importance for the postponement of death. Accordingly, the pool of elderly with cancer and ischemic heart diseases increases. This might not increase the demand for care as such, but survivors from myocardial infarction can catch other chronic disabling diseases. The prevalence of such non-lethal but handicapping diseases will increase in society, and a loss of abilities will follow.

Health status of the future elderly will be characterized by polarization between categories of elderly. Differences in the now middle-aged, the future elderly, are greater regarding education, social conditions and life style, than in the elderly of today. Retired people after year 2000 will be divided between (1) a group looking back upon a life with employment, family and some education; and (2) a group who during a lifetime have been mostly unemployed, uneducated and divorced, with related health problems. We will also see a subdivision in the

elderly, with active self-care, caring for themselves or accepting and using official help, and the passive elderly not able to cope with disease and becoming dependent when help is offered.

Technological devices will set limits between elderly using them and those elderly suspicious of or disinterested in this kind of entertainment/help/supervision. The subgroup of elderly in need of 24-hour care will, to a higher degree, be marked more by anxiety and a diminished structure of daily life, than by serious physical handicaps.

The demand for resources for the elderly will increase. Probably the expenses of prevention, treatment and rehabilitation of elderly will be less, as we try to find the right help for the right person in the right moment. The total account depends on the increasing number of elderly.

The expectations for care when a need is felt can be fulfilled individually, as we learn more about aging and geriatrics. The few people reaching very high ages will, however, be increasingly at risk for loss of resources due to normal aging--a reality around age 100--and the increased disease incidence related to age. They are in need of correct care, when they get that old. The increasing number of very old in need of care can thereby increase expenses.

CHAPTER 5

USE OF HEALTH CARE AND SOCIAL SERVICES BY THE ELDERLY: DETERMINANTS OF PRESENT USE AND FUTURE DEVELOPMENTS

Anneke Klaassen-van den Berg Jeths*

Introduction

Research into the way services are used has already had a fairly long history. The purpose of this study was to seek an explanation for the variations in the use of service facilities. It became clear that it is not only a person's state of health that can influence the extent to which services are utilized -- all kinds of purely individual and social factors, also play a part. In the first section of this chapter, the main results of a literature study relevant to this field are presented. The second part will confront the question as to whether the future will bring about any changes in the factors which have a direct bearing on the felt-need for particular services. Future generations of the elderly will probably reveal other characteristics than the current generation. Without doubt, their educational level will be higher, they will have had fewer children and they will constitute a greater percentage of the total population.

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Other aspects are as yet uncertain, but studies have begun nonetheless in the quest for some degree of insight and knowledge about the changes which will come about and their consequences for the health care and welfare services. (32)

Service utilization determinants

Study of the way in which (health) services are used shows that there are five different directions in research:

- *the demographic approach*: in this approach, a study is made of the possible relationship between service-use and personal characteristics such as age, sex, social-economic status and income;
- *the social-psychological approach*: efforts are made here to explain an individual's medical consumption as arising from his motivation, or lack of it, to seek counsel, his medical knowledge, his personality as such, his confidence in the doctors treating him and his attitude towards health and medical science in general ("Health Belief Model");
- *the social-cultural approach*: the main points of attention here are the general consensus regarding health and sickness norms within a particular social group, the religious beliefs, the general cultural background (nationality, ethnicity) and the influence exercised by network members (parents, friends, family members);
- *the financial economic approach*: at the center of this approach is the question as to what extent the type of health insurance (differences in the medical consumption of state health insurance and private health insurance) directly affects medical consumption;
- *the behavior model*: this model endeavors to reach a combined analysis of as many as possible of the variables included in the previous models; the point here

is to try to eliminate the drawbacks of the more limited explanation-possibilities which work purely on the basis of psychological, social-cultural or financial-economic variables.

It is the American researchers, in particular, who have used the behavioral model as the starting point of their studies. The pioneers of this tradition are Andersen and his team-colleagues, who have been developing and refining this model since the end of the 1960s. (1,2)

Andersen's model

Initially, the main purpose was not to look for an explanation of the differences in utilization of available services. Twenty years ago, it was the accessibility of U.S. health care services in general and the curbing of the discriminatory elements governing access to them at that time, which formed the most important aims of this type of research. A number of American authors, who even today continue to base their activities on Andersen's work, regard their primary aims as the explanation of the differences in services-use and the modification of the original variable-model. The behavior model, however, is not confined to the search for an explanation of the use of health care services, but also includes social service facilities in the analysis process (e.g., family care, meals-on-wheels and recreational services etc.).

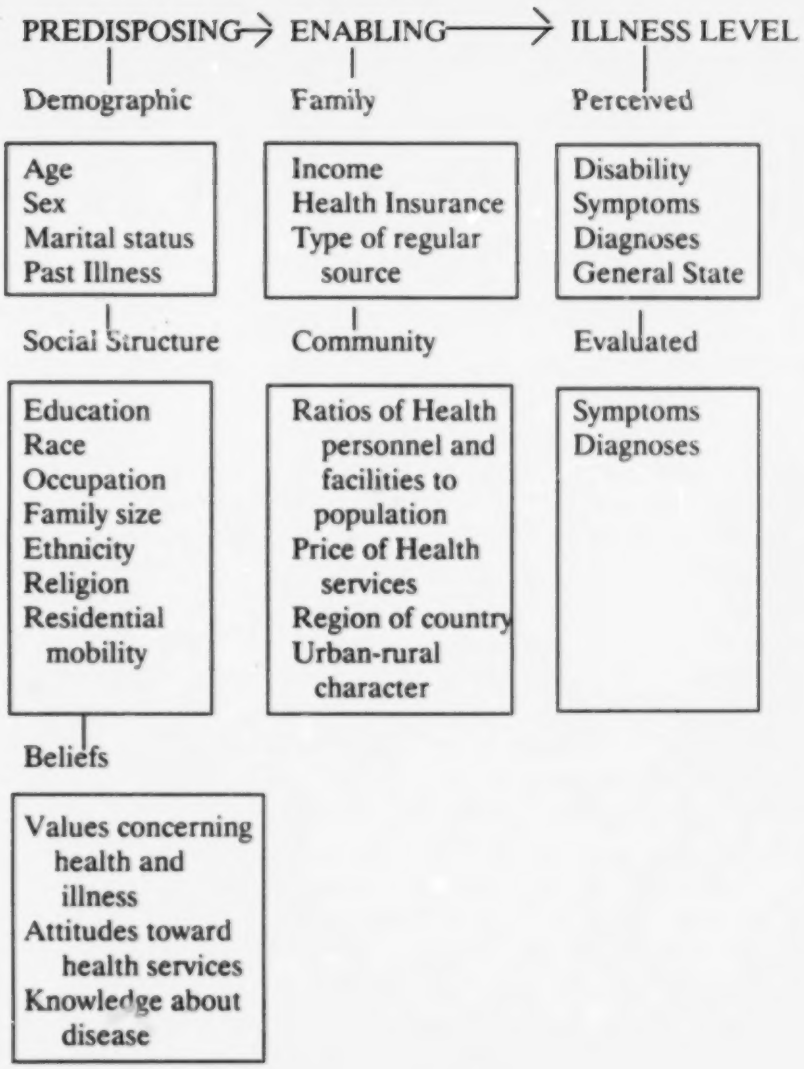
The Netherlands is far less familiar with one overriding research tradition. The study of service-utilization determinants is inherent in several of the approaches mentioned earlier. Bearing in mind that the behavior model contains a large number of variables and claims be more complete than the other methods, it was decided to include an analysis of studies using the behavior model as their point of departure in this present study.

The Andersen model consists of three groups of variables:

- "predisposing variables": including demographic variables such as age, sex, civil status and previous medical history, race, occupation, family size, religion, and values and norms relating to sickness and health and medical knowledge;

- "enabling variables": these either hinder or encourage people to use available services and include individually-related variables (income, insurance system) and neighbourhood or insurance system/organization variables such as availability, accessibility and acceptance criteria;
- "need for care factors" or "illness level": variables which influence the need for use, such as illness, handicaps and functional-disabilities, and the degree or their seriousness, as presented either by the patient himself ("perceived illness") or his doctor ("evaluated illness").

Figure 1
Health Service-use Determinants



Source: Anderson and Newman, 1973

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A number of large-scale multivariate studies have tried to provide an answer to the question of what is the significance of the separate independent variables for the dependent "service-use" variable. Some authors use Andersen's model fairly freely, selecting and supplementing the variables as they see fit, and sometimes the modification of Andersen's model becomes an aim in itself. This has inevitably led to a wide divergence in variables. We were able to record a total of more than 40 independent variables in the publications under review, resulting inevitably in limited possibilities for comparing the results of the various studies. There were also wide differences with regard to sample populations and the services analyzed.

Despite the low degree of research comparability using Andersen's model as the base, the results do nonetheless point in the same direction:

- In the service-use variation (contact and volume) only a small percentage could be explained:
  - *family-doctor care*: 9-25%; (2,3,4,5,6,7)
  - *hospital treatment*: 6-14%; (2,3,4,6,7)
  - *nursing home care*: 3.5%-10%; (7,8)
  - *other ambulatory facilities* (home care, district nursing, meals-on-wheels, lunch-services, transport, service centers, recreational services, etc.): 15-43%; (3,5,7,9,11)
- The most important factor in determining the total variation in the use of health care services stems from the "need for care variables" (state of health, handicaps, functional disabilities); in most cases, the "need variables" accounted for at least double the total variation than the "predisposing" and "enabling" variables combined; and so far as the social service facilities are concerned, it is "service awareness" and the "presence of informal help" which largely contribute to the explanation of differences in use.

The reasons for the limited capability of the behavior model to explain the variability of service-use might be summarized as follows:

a. The behavior model lacks a theoretical base. It is hardly more than a more or less systematic enumerationof a varying number of independent variables with "service-use" as a dependent variable. Hypotheses on the relationship between the dependent and independent variables are lacking.

b. In multi-variate analyses, psycho-social and cultural factors seem to play a relatively unimportant role, in contrast to the qualitative, small-scale analyses. This probably arises from the use of a general conceptual model, the large cross-sectional surveys, the large number of variables and the lack of accuracy in measuring the many variables.

c. This model was originally intended exclusively for the medical services (family and hospital doctors and dentists) and it is questionable whether it can automatically be applied to services in the social welfare sector. The two different types of service with varying functions presumably have their own particular influencing factors (in part at least).

d. The behavior model is intended for application to the whole population. If the model is used to explain the care-consumption rate of a sub-group of the population (e.g., the elderly), the variation in the care-use is automatically reduced.

The question is, can a model incorporating other, or more independent, variables provide a better prediction rate, or is service-use dependent on processes which cannot, or only partially be "captured" in one model?

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A Further Study of Service-use Determinants

A second literature survey was carried out in the quest for a better understanding of our subject and in this case we analyzed studies of service-use not based on Andersen's model. This type of study is generally not concerned with multi-variate analyses but rather more on the simple statistical interdependence between one or more independent variables and service-use.

This part of the study revealed, once again, that the discovery of influencing factors on medical-consumption is very largely determined by the research design. A few of our findings:

Family doctor care

Use of the family doctor service went hand in hand, amongst other things, with: "an inclination to complain" (12), "an inclination to consumption" (13), type of medical insurance (14), "insurance cover" (14) and the travel distance between doctor and patient. (15)

Hospital

There have so far been very few studies of the factors which influence the use of hospital facilities (either as an in-patient or out-patient). There are also a number of completely different types of research; besides survey-research projects, we also come across analyses on an aggregated level, in which characteristics of a whole population -- such as the unemployment rate -- are related to medical consumption. Studies of this kind enjoy a high percentage of explained variation, i.e. between 70% and 98%. (16, 17) These results do not lend themselves, of course, for translation at the individual level.

Those people included in a health insurance fund, without background factor adjustment, apply for 2% less specialist consultations than those covered by private health insurance. After background factor adjustments (other than the state of health), however, it becomes apparent that people with private health insurance make 16% more use of specialist treatment. The reason may lie in the different tariff levels and the amount of insurance cover. Consumption differ-

ences between state and private health insurance, from the point of view of the number of days hospitalized, could not be explained on the basis of differences in background factors. It seems likely that the difference here lies purely in each patient's medical condition. The number of hospitalization days was 34% higher for state medical care scheme patients than for privately insured patients. (14)

Other services

We are concerned here with family care, district nursing services and homes for the elderly, and once again we see that the results of the various studies sometimes show a common direction and sometimes (partially) contradict each other.

The independent variables, sex, age (except for formal help), educational level (except for private home-help) and degree of urbanization seem to offer no explanation for the differences in family/district nursing services, informal help and private home-help (in this case informal help and private home-help were regarded as dependent variables). A poor ADL-validity, lack of mobility and living alone greatly stimulate the call for professional help. (18, 20) People with a lower level of education receive more frequent help from the home-help services, children and other family, than do those of a higher educational level. (18, 19) Home owners tend to request homes for the elderly less than those living in rented accommodation (influenced by the 'own-contribution' regulation), even in cases of serious handicap. (19) Anxiety and feelings of depression and stimulation to use care by the social network, show a positive relationship to service-use. (21. 13)

Future developments concerning the demand for service

In studying future developments in this area, we made a selection of independent variables. The number of variables with a strong relationship with the dependent variable is, in fact, not so large. We mainly have made use of data from studies carried out exclusively in The Netherlands. In this way we arrived at a total of 12 selected variables:

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Need variables
- state of health (perceived and evaluated)

Predisposing variables
- age
- sex
- civil state/household composition
- education
- social-economic status
- accommodation
- social network
- (household) capabilities
- norms, values and attitudes towards sickness and health

Enabling variables
- income
- availability of informal help

We then looked at the changes we might expect to see in these 12 variables in the future and their likely consequences for future planning needs. The period 2000-2010 is our point on the horizon. Although our explorations into the future are directed solely to the situation in The Netherlands, the conclusions drawn are equally applicable to other Western countries.

State of health in the future

The question is: will future generations of older people be healthier than the present generation of elderly (bearing in mind the longer life expectancy -- in 1988 this was 73.5 years and is expected to rise to 74.5 years in the year 2000 for men, while the female population had an average life expectancy of 80 years in 1988 and is likely to reach 80.5 years in the year 2000), and will the illnesses afflicting the population today be avoidable or completely curable tomorrow? These questions have been approached in two different ways.

First, we looked at the possible existence of trends in the past which might reflect changes in the health status (evaluated and perceived) of old people. Over a period of roughly 25 years, it was apparent that -- with the exception of an increase in respiratory disorders -- there have been no striking changes in health profiles (see Table 1). (30)

Table 1
Ill Health in Persons Aged From 65-70 Years in Both 1955-1957 and 1982 (in percentages for each category) in The Netherlands

	Males		Females	
	1955-'57	1982	1955-'57	1982
Rheumatic complaints	22	26	34	36
Dizziness	13	11	18	20
Diabetes	3	6	6	7
High blood pressure	13	15	33	26
Shortness of breath	8	23	13	27
Asthma	1.4	4	0.3	3
Chronic coughing	5	14	4	9

In the "perceived health" as well, no significant changes have arisen since 1974 and if this trend continues into the next decade and beyond, then once again we can expect to see very few changes.

Secondly, we analyzed a number of publications devoted to the future state of health of the elderly: *Note 2000* (a government memorandum), scenario-studies on aging, cancer, heart and vascular diseases and publications concerned with the "Fries thesis". (22-27 incl.) In 1980, Fries predicted that the number of extremely old people would not increase, that chronic illness would burden smaller proportions of their lives and that this would ultimately result in a decreasing need for medical care in old age. These predictions have been attacked from all sides.

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The expectations in The Netherlands on the state of health of our old people in the year 2000 have created less controversy. The *Note 2000* and the scenario-study on aging both express the expectation that the health of the aged in the coming 10-15 years is not likely to undergo any real change. The demographic development is the main reason for the increase in the degree of illness in the population. Only ischemic heart disorders are expected to show any decline (Table 2).

Table 2
Estimated increase in the prevalence of four disease categories in old people in the period 1985-2000 in The Netherlands

Disease/disorder	Number of patients in 1985	Number of patients in 2000	Increase/ decrease 1985-2000
Rheumatism* (55 years & over)	approx. 1.1 million	approx. 1.3 m.	+ 18%
Dementia* (65 years & over)	approx. 132,000	approx. 157,000	+ 19%
Cancer** (excl. skin) (60 years & over)	approx. 150,000	approx. 210,000	+ 40%
Ischemia** (all age groups)	approx. 289,000	approx. 222,000 till 283,000	- 23% - 2%

*Demographic calculation
**Scenario-studies

The growing need for medical care in the future will emanate not only from demographic shifts but also from improved scientific know-how in the treatment of cancer, heart and vascular diseases, in particular, and will carry an increased life expectancy with them. In view of the fact that most diseases have a long incubation period, any preventive measures taken between now and the year 2000 will have little apparent effect.

Age and sex

The older we get, the more use we need to make of the medical and social services. A possible relationship between service-use and gender is, however, less evident. Relatively speaking, women make more use of the family doctor service and homes for the elderly than do men, but just as much, or less, use of the ambulatory mental health and hospital services as men.

Population prognoses issued by the Central Bureau of Statistics show an important increase in people aged 65 and over. The male population in the 65-79 year-old category is expected to have risen 16% by the year 2000, as against 12% for the female population. The male 80+ group will increase by 11% and the female 80+ group by 22% in the same period. So the 'double greying' of the population will have an important influence on future service use.

Civil status/household

According to the population forecast, the year 2000 is not likely to show much change in the civil status of our older citizens, except in the area of divorce -- a rise from 3.6% to 5.9% is expected here. This prognosis does not, however, cover the composition of Dutch households in the future; new life-styles, such as "living together" and "group living-units" for the old, are expected to result in less single households than might be expected when looking at the formal civil status figures alone. The percentage of old people living with or near their children or grandchildren has seen a decline in recent years, but on the other hand, has shown a rise from 9.6% in 1979 to 15.2% in 1987

for those above the age of 80 years. Developments of this kind are important with regard to the availability of informal care-services. We assume that the percentage of single households will not increase significantly in the coming years, the tide of negative and positive shifts ensuring a steady balance. But in absolute figures there will be an important increase in people living alone. For people over 75 it is expected to be 40% in the year 2000!

Educational level and social-economic status

Both of these variables are important for different reasons: generally speaking, the benefits of a higher education and a higher social status make for better health; people from the higher status groups usually enjoy a higher income, which enables them to make more use of commercial help. And finally, as mentioned earlier, there is a direct connection between the social group and the use of care-facilities (the lower social strata make, on average, more use of family care and/or district nursing services, while requests for a place in homes for the elderly are more likely to come from the middle groups).

Improved educational facilities for the young will find their reflection in a better-educated elderly population in due course, and we might reasonably expect a corresponding rise in the number of elderly joining the higher social status groups. This could lead to a slight improvement in the general health of the older age groups (although the figures mentioned in Table 1 don't give much evidence for this).

Accommodation

When the elderly become incapacitated and less mobile, but are nonetheless suitably housed, they show a distinct disinclination to demand formal help from the social service sector (home help and homes for the elderly). On the other hand, satisfactory or unsatisfactory housing seems to have little or no influence on the degree to which old people avail themselves of the health-care services around them.

There is still a substantial shortage of suitable accommodation for the elderly, particularly small, independent, housing and no real

improvement in the situation is expected before the year 2000. Even then, we anticipate a shortage of 290,000 small rented properties and 60,000 small private ownership properties. (31)

Home owners, relieved of mortgage payments, have an obvious financial advantage above those who still have to rent their homes in old age; this financial margin allows more room to maneuver and enables a pensioner, for instance, to have paid-help in the home, etc. This might also explain why homeowners make less use of the district nursing and family-care services.

The social network

Both the extent and the quality of the social network influence the demand for services. Those happy with friends and neighbors, for instance, are less inclined to seek admission to a home for the elderly.

We can expect an elderly person's family network, however, to shrink as the years go by -- in the 75-year period from 1939 to 2015, for instance, the number of close relatives (brothers, sisters and children) of women aged 60 will have been halved. Against this, it is worth noting that women who reach the age of 60 years in 2015 are more likely to have at least one parent still living than their counterparts in earlier age-cohorts. But these elderly daughters may have too many problems with their own health to assist their parents.

The declining average number of children per family and the rise in the percentage of childless parents (estimated at 25% in the year 2000), will result in a decrease in informal care. This will also be limited by the growing geographical mobility and the upward surge in the number of women in paid employment.

Only a few researchers have dared to offer predictions about the nature and extent of the friendship networks. Recent studies have shown that the importance of friends rather than family and relatives is growing when seen in terms of enjoyment and the sharing of confidences. Older people, however, still regard the (marriage) partner as their main friend and ally.

Interest in "group-living" or living-units with shared rooms (living room, kitchen, hobby-room) is also expanding, and these too will no doubt contribute to stronger ties within the social networks.

What seems most likely is that the present trends in separation and divorce and new relationship forms, will reach out and touch the older generations bringing us into the 21st century. Elderly people, women especially, will be less inclined in the future to allow their lives to revolve around their partners alone, but will look out towards the society around them. A large proportion of the very old female population, however, will become and remain widows, just as is the case today.

Household capabilities

The traditional male and female roles have left many men incapable of carrying out normal household tasks, and it is for this reason that they turn more frequently to family-care services and old people's homes for assistance when the more informal help-networks fail them. This picture is not expected to alter very much in the near future when we realize that men in the present 35-50 age group still cast themselves in the traditional masculine role.

For women, however, we can expect a great improvement in their ability to handle financial matters because of their increasing level of education.

Attitudes with regard to illness and health

It is assumed that older people are replacing the traditional-magical idea of sickness by a more modern scientific approach, and that the consumption-inclination (the total attitudes and behavior patterns which are all concerned with medical consumption) will increase. This is caused, on the one hand, by improved medical procedures (which, furthermore, can be influential in the ability of old people to withstand and enjoy the ultimate benefits of medical treatments such as hip and knee surgery) and on the other hand, by developments such as openness to "second opinions", periodical check-ups and sickness pre-

vention programs for the elderly. At the same time, the increasing use of alternative forms of remedial treatment (insofar as they are covered by medical insurance) and "de-medicalization movements" (such as self-help groups) might possibly create a cut-back in the need for care-services, although there is every reason to believe at present that only a very small percentage of the elderly are, in fact, attracted to these relatively new trends.

Income

There is a stronger relationship between income and services in the social sector than in the health care sector. Hospital admissions occur less frequently in elderly people belonging to the higher income groups (the result of better health in general, perhaps?), but there is no relationship between income and the family doctor services.

It is clear that the higher income group of pensioners has more freedom to shop around in the open medical market, and that they resort less to home-help and district nursing service.

It is assumed that old people will generally be better-situated financially in the future, because of wider-ranging and higher levels of supplementary pensions. This assumption should be approached with caution, however, because important parts of the elderly in the future will not have higher pensions (due to an insufficient pension system in The Netherlands).

It is vitally important that the Old Age Pension should not be allowed to fall below the level of the social minimum income and there is no doubt that large groups of old people in the future will be almost entirely dependent on the Old Age Pension. In the period 1980-1985, the net old Age Pension payment dropped by 13%. Some suggestions for keeping the pensions at an affordable level are somewhat disturbing. It has been suggested, for instance, that the Old Age Pension for widowed or single pensioners should be cut from 70% to 50% (compared to the amount for two-person-households). In short, the gaps in income-levels between the various groups of old people will undoubtedly increase.

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Informal help

It is the informal help networks which respond to a large proportion of the help-needs of the elderly. They are usually concerned with problem situations for which professional assistance is not required and which can be done just as well, or even better, by non-professionals (the official medical care obtainable by law from qualified doctors only is not included here, and neither is the type of help which falls under the normal every-day forms of care).

There are hardly any quantitative data available on the extent of this informal help. The helping hand of children, relatives, neighbors, friends and volunteers is given more -- as could be expected -- to very old people living alone than to "younger" pensioners not living alone, and in most cases is for no more than 1-6 hours per week.

It is difficult nowadays to draw any real distinction between professional services, informal help and commercial help because of all the new developments in the field of help and care services: informal care support by professionals, experiments in home-nursing, sheltered dwellings, private nursing bureaus and "individual care subsidies".

Voluntary work has also seen a steady increase in recent years and includes care-services to people outside the family. It is still assumed, however, that voluntary work is mainly designed to supplement professional care and is not intended in any way to replace it (long term household care is not included, for instance, and certain tasks, such as cleaning, are seldom done by volunteers).

In what direction will the informal help networks go in the future? Because no real changes in general health standards are anticipated in the near future, any shifts towards self-care at the individual level can be expected. If we look at society as a whole, we see a growing lack of self-care capacity as a result of the rising number of very old people. It might be possible to compensate this increasing shortage of self-care capacity in society as a whole, by means of natural networks (family, friends, neighbors) and/or functional networks (self-help groups, volunteers). These functional networks could be based on a sense of solidarity between the elderly themselves or between the elderly and the young. Government can take stimulating

measures like allowances for caring and compassionate leaves.

Consequences for future demands for care-services

We have attempted to present, in a more quantitative sense, the consequences of the developments described at the level of need, predisposing and enabling variables in future care requirements. It is possible, first of all, to calculate what effect demographic developments have on service requirements, and here we see (other circumstances remaining unchanged) that in the year 2000 requests for admission to homes for the elderly will rise by 30%, nursing home bed-requirements by 20%, and the number of older clients receiving ambulatory psychiatric help by 24%. (23)

Until now, few researchers have attempted to formulate a quantitative prognosis, taking account of factors other than the demographic developments. A notable exception is the *Note 2000* and the assessment of the number of required places in homes for the elderly. (22, 19) A planning norm has been developed based principally on demand for care factors (i.e., handicaps, single pensioners and couples, "orientation towards homes for the elderly" and average length of stay). This resulted in a requirement-norm of 15% of the 75-pluses, a figure which it is felt can be kept constant for the whole 1986-2000 period because, in the long term, the undulating requirement-factors balance each other out.

We didn't succeed in presenting a quantitative estimation of the influence the determinants described can have on care requirements. We can, however, give an outline of the direction of the relationship between the dependent and independent variables (see figure 2). If we take the relative influence, we are concerned with changes in the proportional division of a particular characteristic visible within the older section of the population. And in the case of the absolute influence, account is taken of both the relative influence and the growing number of elderly people. In this way a rise in requirement, in the absolute sense, is possible despite the mitigating effect of a particular determinant.

Figure 2
Influence of Determinants on the Demand for Services by the Elderly in the Year 2000.

Determinants	Influence on demand	
	Relative	Absolute
1. state of health		
- amount of ill health	0	+
- increasing medical possibilities	+	+
2. age and sex		
- increased life expectancy	?	?
- double greying of the population	0	+
3. civil status/household composition		
- ratio of single household	0	+
4. education and social-economic status		
- improvement	-	?
5. accommodation		
- rising percentage of home owners	- (homes for the elderly)	?
- sheltered dwellings	- (homes for the elderly and nursing homes)	-
- shortage suitable accommodation	+	+
6. social network		
- smaller family network	+	+
- friend network (improved)	-	?
7. (household) capabilities		
- traditional male/female roles	0	+
8. attitudes with regard to illness		
- growing inclination to medical consumption	+ (medical services)	+
9. incomes		
- improvement (partly)	-	?
10. informal/commercial help		
- self-care	0	+
- informal care	?	?
- voluntary work	+	?

Our schedule makes no distinction between the various services (unless explicitly indicated).

Closing Remarks

There are more and more advocates of the necessity of bearing in mind the "needs" and "desires" of the elderly when determining the extent of the care-services, rather than using the old "facility" and "availability" approach. (28) Our study has, first of all, made it clear that there is, as yet, no definitive answer to the question, to what extent do demand factors actually contribute or hinder the way in which the services are utilized?

Secondly, we were only able to arrive at an approximate estimation of what the effects of changes in the determinants are likely to have on future demands for care-services.

One of the problems was that only the influence of separate developments could be assessed and that it was not possible to draw conclusions about the interrelations between the effects. We assume that the influence of developments which stimulate the use of formal services is much stronger than the influence of developments which have a reducing effect on the use of formal services.

We are not concerned here with autonomous changes: by introducing a number of measures (such as pension arrangements, compassionate leaves) it is possible, to some extent, to steer developments in a particular direction. What has been described above, should only be seen, therefore, as a possible picture of the future.

Despite the consumption-stimulating developments, the Dutch government is trying to ensure that future medical and social service expenditure is kept to a set level. In order to achieve this goal, changes in policy are called for:

- substitution of intramural care by extramural care;
- substitution of expensive care by less expensive care;
- substitution of formal care by informal care.

At this moment, a major reorganization of the health insurance system is proposed in The Netherlands. One of the proposals is to

reduce the intramural capacity of nursing homes and homes for the elderly (at the moment, 7% of people over 65 years of age live in homes for the elderly and 2.5% in nursing homes). The burden on informal help and extramural help will be much heavier in the future if these plans become reality.

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